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# The expression of contrast in Catalan Sign Language (LSC)

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SPECIAL COLLECTION:  
CONTRASTIVE, GIVEN,  
NEW – ENCODING  
VARIETIES OF TOPIC  
AND FOCUS

**RESEARCH**

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## Abstract

In this paper I aim at providing fresh evidence from Catalan Sign Language (LSC) to support semantic-pragmatic theories that treat contrast as a separate category in IS. Following Umbach (2004) and Repp (2016), and inspired by Kimmelman (2014), I provide a classification of contrast types in LSC, and I analyse the correlation of different combinations of prosodic markers and the pragmatic interpretations they encode.

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The notion of contrast is controversial in the Information Structure (IS) field. Some theories assume that contrast is a feature of topic and focus (Chafe 1976, Kiss 1998), while others claim that contrast is an independent notion, orthogonal to other IS notions, such as topic and focus (Vallduví & Vilkuna 1998, Molnár 2002, among others).

In this research I understand contrast as the dependency relation between two or more contextually salient alternatives in discourse. The aim of the article is to provide empirical evidence from Catalan Sign Language (*llengua de signes catalana*, LSC) that contributes to the typological discussion on the definitions of the notion of contrast in IS. I adopt Navarrete-González's (2019) proposal regarding the prosodic and morphophonological contrast markers in different types of contrast in LSC, and I broaden the paradigm of contrast markers. Moreover, I offer an analysis of the different pragmatic interpretations that correlate with these markers in the different types of contrast, and their relation to topic and focus.

The paper is structured as follows. Section 2 offers an overview on the existing literature on the notion of contrast in both spoken and sign languages (SLs). Section 3 states the methodology used for the elicitation of the data. Section 4 presents the paradigm of markers for different types of contrast. Section 5 analyses the interpretation of the different types of contrast in correlation with their prosodic markers. Section 6 offers a brief overview of some of the possible phonological, morphological, and semantic factors that can override the most frequent markers presented in Section 4. Section 7 summarizes the main conclusions.

## 2. Contrast in interaction with other IS notions

### 2.1. Defining the notion of contrast

Despite the considerable amount of literature that has been devoted to the notion of contrast, there is still controversy about how contrast should be defined. In the IS literature the notion of contrast has been mainly addressed from two different perspectives: syntactic and semantic. In syntactic analysis contrast is seen as a feature that can appear together with the topic or the focus of a sentence (Chafe 1976, Kiss 1998), giving rise to different types of focus and topic, like contrastive focus and contrastive topic. Since contrast is a feature that co-occurs with two different notions (focus and topic) there are at least two different types of focus: information focus (IF) and contrastive focus (CF), which are distinguished by their syntactic and semantic properties. From this view, CF occurs in a different syntactic position than IF and is interpreted as exhaustive. Some languages like Hungarian provide evidence for this claim: in (1a) CF occurs in preverbal position, whereas in (1b) IF is placed in final position (Kiss 1998).

- (1) a. Tegnap este [Marinak]<sub>F</sub> muttatam be Pétert.  
Last night Mary.DAT introduced.I PERF Peter.ACC  
'It was to Mary that I introduced Peter last night.'
- b. Tegnap este be muttatam Pétert [Marinak]<sub>F</sub>.  
Last night PERF introduced.I Peter.ACC Mary.DAT  
'Last night I introduced Peter to Mary.'
- (Kiss, 1998: 247)

From this approach additive focus particles like 'also' or 'even' cannot combine with a CF, since a CF is interpreted exhaustively.

- (2) \*Mari [egy kalapot]<sub>F</sub> is nézett ki magának.  
Mary a hat.ACC also picked out herself.DAT  
'?It was also a hat that Mary picked for herself.'
- (Kiss, 1998: 252)

However, this approach is problematic for languages where the marking of contrast is ambiguous, like English or German (Molnár 2002). Also, there are contrastive constructions that are not exhaustive, like parallel constructions. In (3) below there is a non-exhaustive parallel contrast between 'linguist' and 'interpreter', so the focus particle 'also' is completely acceptable.

- (3) Raquel is a [linguist]<sub>F</sub> and/but **also** an [interpreter]<sub>F</sub>.

From a semantic perspective contrast is understood as an independent category that is triggered by the existence of alternatives (cf. Rooth 1992, Vallduví & Vilkkuna 1998, Molnár 2002, Krifka 2007, Repp 2016, Umbach 2004). The presence of contrast indicates that there are other relevant alternatives that can be added to the common ground (CG). In some of these works, the definition of contrast is the same as the definition of focus in Alternative Semantics (cf. Rooth 1992), where contrast and focus are unified into one single notion: focus. This framework states that focus is always contrastive, because it always triggers alternatives. Krifka (2007) further distinguishes between two types of focus depending on the type of set of alternatives they belong to: open focus vs. closed focus. The former triggers a set of alternatives that is not identifiable in the context; the latter triggers a closed set of alternatives that is delimited and easily identifiable in the context. This distinction is important in analysing LSC data since there is a specific marking for closed focus, which I identify as contrast. From this view, contrast/focus can also be present in topics whenever there are salient contrasted alternatives that are relevant in the CG (cf. Büring 2003).

The unifying approach of focus/contrast also poses some problems, though. Many languages, like Hungarian (see (1) above) and Finnish (4), have a specific marking for contrast (4b) which differs from the one for focus (4a), and thus they do not fit in a unifying approach.

- (4) a. What things did Anna get for her birthday?  
Anna sai [KUKKIA]<sub>F</sub>  
'Anna got flowers.'
- b. What is it that Anna got for her birthday?  
[KUKKIA]<sub>CF</sub> Anna sai.  
'Anna got flowers.'

(Vallduví & Vilkkuna 1998: 90–01)

In light of this, some works highlight the importance of separating new information from contrast (Vallduví & Vilkkuna 1998, Vallduví 2016, Molnár 2009). In these studies contrast is defined as an orthogonal independent notion that is not obligatorily bound to focus and can overlap also with the topic of the sentence.

The diversity of views presented here regarding the definition of contrast can be explained by the heterogeneous forms for expressing it in the different languages studied to date, which leads to different conceptions of this notion. While in some languages contrast is marked by grammatical means, in other languages contrast does not have an explicit marking. Therefore, it is not an easy task to come up with a unified theory that accounts for all languages studied until now (Repp, 2016). In Section 2.2 some theories developed from a semantic perspective are presented that take into account this diversity and analyse contrast as a complex notion that conforms different types at different linguistic levels (Molnár 2002, Umbach 2004, Repp 2016).

SLs seem to contribute to the view of contrast as an independent notion, since they share some common features for the expression of contrast: most of the SLs studied to date show specific marking that only appears when contrast is present, and it is clearly distinguished from the marking of other IS notions, such as topic and focus (§ 2.3). In LSC contrast also shows clear independent prosodic marking that can be distinguished from the marking of focus and/or topic (§ 4) and correlates with different interpretations associated to different types of contrast (§ 5). However, it does not show a specific syntactic position for CF associated to exhaustivity. For this reason, I adopt a semantic-pragmatic perspective that allows us to better explain the expression of different types of contrast in LSC and the correlation between prosodic markers and pragmatic interpretations.

## 2.2. Contrast types and their realization

As mentioned in the previous section, some theories have developed more fine-grained analyses that present contrast as an independent notion that can be found in information and discourse structure and that involves different types (cf. Molnár 2002, Umbach 2004, Repp 2016).

Through crosslinguistic comparison, Molnár (2002) shows that contrast is an independent category superimposed on topic and focus. Contrast can be found at the pragmatic level, where it is found in a closed set of alternatives; and at the semantic level, where it involves an open set of alternatives. This work proposes the following labels for different contrast types:

	Focus?	Topic?
Closed set	CONTRAST	LD-CONTRAST
Open set	FOCUS OPERATOR	I-CONTRAST

(Molnár 2002: 109)

At the pragmatic level, Molnár distinguishes CONTRAST and LD-CONTRAST (left dislocation contrast). CONTRAST is expressed in many languages moving a focus to the left periphery when there is explicit mentioning of the alternatives or the alternatives are salient in discourse. LD-CONTRAST is also moved to the left periphery and needs alternatives to belong to a closed set. It is used to mark a shift of attention from one topic to another.

At the semantic level, two types of contrast are connected to open sets of alternatives: FOCUS OPERATOR, which involves exhaustivity since it excludes all possible alternatives, and I-CONTRAST (intonation contrast), which does not involve exhaustivity, since it only excludes some of the alternatives. I-CONTRAST is expressed by intonation and is traditionally linked to topics; however, Molnár provides evidence from English that it can be superimposed on both topic and focus. Also, the type of contrast found in Finnish (see example (4) above), is always expressed by the syntactic position and can be superimposed on topics and focus too.

Umbach (2004) claims that the notion of contrast cannot be considered a unique or single notion, since there are different types of contrast both at the information structure (IS) and at the discourse structure (DS) level, which trigger different interpretations. At the IS level, contrast is divided into i) contrast due to similarity plus dissimilarity, which is a prerequisite for alternatives and thus for contrastiveness, and ii) contrast due to exclusion, which triggers exhaustivity. The former is exemplified in sentence (5) below. The words *beer* and *port* are contrasted referents that are similar, since they have a common integrator –both are drinks–, and are dissimilar, since both have semantic independence –both have different independent meanings.

(5) John bought the BEER and/but Mary bought the PORT.

(Umbach 2004: 6)

As for contrast due to exclusion, it can be further divided into two varieties with semantic differences. The first variety is exemplified in (6) below, where the contrastive focus *Ronald* excludes the possibility that some other item instead of *Ronald* makes the proposition true. In example (7), instead, the only-phrase *only Ronald* excludes the possibility that some other item in addition to the focused one makes the proposition true.

(6) (A: Mary made the salad and Anna the hamburgers.)  
 B: RONALD made the hamburgers.

(adapted from Umbach 2004: 7)

(7) (A: Tonight, Ronald and Rosa went shopping.)  
 B: Tonight, only RONALD went shopping.

(adapted from Umbach 2004: 8)

Both varieties of contrast due to exclusion are exemplified only via the pragmatic context of a correction in Umbach's work; however, as will be shown in § 5 this type of context could also be found in the context of a selection between two alternatives (selective contrast) in LSC, since the same 'exclusive' meaning could be derived.

At the DS level, Umbach analyses the discourse relations CONTRAST (8) and CORRECTION (9) through structures with *but*.

(8) a. In Paris, Ronald only went to the CINEMA.  
 b. In Paris, Ronald went to the CINEMA, but he didn't go to the OPERA.

(9) a. (A: Yesterday, Ronald went to the opera.)  
 B: Ronald went to the CINEMA.  
 b. Yesterday, Ronald did not go to the OPERA but to the CINEMA.

(Umbach 2004: 14)

Both discourse relations behave similarly to contrast at the IS level and seem to be intertwined with contrast due to exclusion: both require the similarity plus dissimilarity condition and both indicate the exclusion of one of the alternatives; however, CONTRAST excludes the possibility that the second alternative is true in addition to the first one (like *only*-phrases), and CORRECTION excludes the possibility that the first alternative is true instead of the second one (like CF).

Similarly to Umbach, Repp (2016) analyses contrast taking into account two dimensions: i) the alternativeness of constituents and ii) the discourse relations between two segments. The former may involve different conditions for contrastiveness to hold: i) explicit alternative (10), ii) explicit alternative set (11), iii) implicit alternative set (12).

(10) [Peter]<sub>C1</sub> went to [Rome]<sub>C2</sub> but [Marc]<sub>C1</sub> went to [London]<sub>C2</sub>.

(11) John, Pete and Josie all offered help. I will ask [John]<sub>F</sub>.

(12) John was choosing fruit for his new bowl. He picked [a banana]<sub>F</sub>.

Regarding discourse relations contrast may involve different degrees of contrastiveness that may be categorized into different discourse relations: i) Smooth discourses (Q-A and SIMILAR), ii) OPPOSE, and iii) CORR. The discourse relation Q-A consists of a question and a congruent answer. The discourse relation SIMILAR is analogous to parallel constructions: there are two or more propositions that can be true in the world of evaluation, which make the same contribution to the current question under discussion (QUD).<sup>1</sup> In the discourse relation OPPOSE both propositions can be true in the world of evaluation, but they make opposing contributions to the current QUD. Lastly, in the discourse relation CORR one proposition rejects the other either i) because both propositions cannot be true in the world of evaluation or ii) because the proposition corrected does not meet certain background assumptions needed for it to be considered felicitous. In Repp's categorization the discourse relations Q-A and SIMILAR are not considered contrastive vis-à-vis OPPOSE and CORR, where CORR involves a higher degree of contrastiveness than OPPOSE. According to this proposal contrast may be triggered either i) by the alternativeness of constituents, ii) by the discourse relations or iii) by both.

In many studies, the so-called *parallel contrast* (SIMILAR in Repp 2016) is not considered a contrastive discourse relation, unlike other types of contrast such as the one found in a correction. One of the basic arguments for this claim is that there must be some kind of opposition between the alternatives, which is not found in parallel constructions like (10) above, in which both segments make the same contribution to the QUD (Repp 2016). However, at the level of alternatives they do involve contrast, since the constituents are explicitly contrasting with each other.

Regarding their marking, contrast types are often marked by (morpho)syntactic and/or prosodic strategies. Repp (2016) argues that different degrees of contrast should correlate with the application of additional or different grammatical means. The marking of the different types of contrast and their combinations depends on the specificities of the grammar of each language.

In general, IS notions tend to occupy positions of prosodic prominence in the sentence; however, there is no one-to-one correlation between prosodic markers and IS notions. Prosodic marking is considered just a tendency, since these notions can also be left unmarked or they can be marked by different means (Féry 2008). For instance, in Catalan and Spanish narrow IF<sup>2</sup> there is a high correlation between focus in situ and rising intonational patterns, while falling intonational patterns seem to be associated to dislocation of the non-focal material and fronting (Vanrell & Soriano 2013). As for CF, an increase on rising intonational patterns correlates with an increase in the use of fronting for marking the CF constituent. Vanrell & Soriano (2013) propose that for broad focus declarative sentences in Catalan and Spanish there is a tendency for the intonational prominence to be located in clause-final position. However, in line with Féry (2008), they claim that these correlates of prosodic patterns with IS notions are just tendencies, since in IF declaratives, the intonational prominence can also be found in

<sup>1</sup> The idea behind the QUD is that each sentence in discourse addresses or answers a question, which is often implicit (for further details see Roberts 2012).

<sup>2</sup> Narrow focus here is understood as involving only one constituent in the sentence (subject, object or verb). It contrasts with broad focus that involves a VP or a whole sentence.

clause initial position in the sentence (in Eastern Catalan and Basque Spanish), and also in situ for both IF and CF declaratives.

Navarrete-González (2019) show three types of contrast in LSC that display a common prosodic marking that only differs in the addition of some nonmanual markers (NMMs) on types involving other interpretations, like exclusion or exhaustivity. This marking correlates with explicit or salient alternatives in discourse that share the similarity plus dissimilarity condition. Additional prosodic markers are found to express additional meaning components like exclusion, exhaustivity or violation of expectations that combine with the marking of similarity plus dissimilarity to express other discourse relations like, for instance, a correction.

However, the following questions are still open: are these common NMMs marking contrast at the level of alternatives or at the DS level? Are additional markers used to express different degrees of contrast? Moreover, do these prosodic markers appear just as tendencies that can be overridden by other factors? Sections 4, 5 and 6 intend to shed some light on these questions, taking as a basis the categorizations sketched above.

### 2.3. Contrast in sign languages

Studies conducted until now in SLs have generally assumed that contrast is not an independent category in IS but a feature of focus and topic (cf. Wilbur 1997, 1999, 2012; Neidle 2002; Van der Kooij et al. 2006; Nunes & Quadros 2008; Sze 2008, 2011, 2015; Crasborn & Van der Kooij 2013; Herrmann 2013, 2015; Kimmelman 2014; Kimmelman & Pfau 2016).

IS notions in SLs may be marked by syntactic or prosodic means (Kimmelman & Pfau 2016). Regarding syntactic strategies, different constructions have been attested to be used in order to express contrast. Wilbur (1997) claims that in American Sign Language (ASL) CF may be marked by question-answer pairs,<sup>3</sup> which consist in a *wh*-question followed by an answer, as illustrated in (13).

- (13)            rhq        hn  
 LEE PAINT WHAT? [CHAIR]<sub>f</sub>  
 ‘What Lee painted was the chair.’

(Wilbur 1996: 210)

Kimmelman (2014) points out that in Sign Language of the Netherlands (NGT) and Russian Sign Language (RSL), corrective focus can be marked by topicalization, moving the focused constituent to the left of the sentence (14), (15).

- (14)            [ICE-CREAM]<sub>f</sub> WOMAN EAT    [NGT]  
 ‘[No,] the woman eats ice-cream.’

- (15)            [K-O-N-F COVER]<sub>f</sub> BOY EAT    [RSL]  
 ‘[No,] the boy eats candy.’

As for the prosodic strategies, SLs express intonation primarily through non-manual markers; namely, facial expressions, and body and head movements (Sandler 2012, Pfau & Quer 2010). Manual prosodic strategies such as the duration of the sign, the velocity of the sign’s movement, or the length of the sign’s movement trajectory, have also been attested as the way a sign is stressed in many SLs (Kimmelman & Pfau 2016).

Almost all SLs studied to date have shown that body leans are the most common strategy employed by SLs for the expression of contrast between two referents. In ASL, forward and backward body leans are consistently used for expressing contrastive relations (Wilbur & Patschke 1998, Schlenker et al. 2016). In NGT left and right body leans are used in order to express contrast (Van der Kooij et al. 2006, Kimmelman 2014). Forward movements are also found in some examples of NGT in combination with left and right body leans (16).

<sup>3</sup> These constructions have been claimed to be the equivalent to *wh*-clefts by Wilbur (1998). However, other researchers have disagreed on this issue and have considered them question-answer pairs not equivalent to a *wh*-cleft construction (cf. Caponigro & Davidson 2011, Kimmelman & Vink 2017). I leave this discussion out of the scope of this paper.



- (16)                                left bl                      right bl  
                                         hs                      forward  
 NO, FRIEND IX, BROTHER IX, SELF IX  
 ‘No, not my friend, it’s my brother [who is learning ASL]  
 (Van der Kooij et al. 2006: 1606)

In ASL and NGT, besides expressing contrast, forward leans are associated with inclusion and affirmation, and backward leans with exclusion and negation at the lexical level and beyond (Figure 1) (Wilbur & Patschke 1998; Van der Kooij et al. 2006).

<i>not Y</i>	<i>only</i>	<i>even</i>	<i>X</i>
Negation	Exclusive	Neutral	Affirmation
-----lean back-----		-----lean forward-----	

**Figure 1** Scale of inclusiveness and exclusiveness in ASL (Wilbur & Patschke, 1998: 299).

In NGT and RSL body leans are usually accompanied by the use of the opposite sides of signing space for placing contrasted referents, as illustrated in example (17) from RSL.

- (17)                                right bl                      left bl  
 [CAT]<sub>T</sub> [BITE BOY]<sub>F</sub> IX [DOG]<sub>T</sub> [BITE GIRL]<sub>F</sub>  
 ‘The cat bites a boy. The dog bites a girl.’  
 (adapted from Kimmelman 2014: 210)

It is important to notice that the marking of contrast described above is spreading over both topics and foci in many examples, like (17) above. Kimmelman (2014) points out that body leans are used to mark contrast and not focus, since they are found co-occurring with both IS notions. This is a common pattern in some of the SLs studied until now. However, Kimmelman does not consider this evidence sufficient to argue for the notion of contrast as an independent category, since these markers in NGT and RSL are only used in a binary way, when only two alternatives are contrasted, and when they are explicitly mentioned. He argues that these markers may arise due to modality specificities: the use of space in SLs.

Crasborn & Van der Kooij (2013) also found a specific use of space, and manual and non-manual marking for CF in NGT. They argue though that the prosodic distinction between IF and CF seems to be gradient, based on the hypothesis that in larger stretches of discourse, body leans can also be used for IF. However, they acknowledge that the possibility that the co-occurrence of several cues may be a distinguishing factor between IF and CF is beyond the scope of their research.

Table 1 shows that body leans are a common strategy across SLs for marking contrastive relations. Head movements also appear in most of them as a way to express CF, mostly related with affirmation.

SL	Type of data	Type of description and/or analysis	CF markers
ASL	Elicited	Syntactic, pragmatic	Wh-clefts, eyebrow raise, forward leans
NGT	Experimental and corpus	Prosodic, syntactic, pragmatic	Left-right body leans, opposite sides of space, head forward
RSL	Experimental and corpus	Prosodic, syntactic	Left-right body leans, opposite sides of space, head forward
LSF	Elicited	Semantic	Eyebrow raise, head nods, Forward/backward leans

**Table 1** Summary of the main findings on the marking of contrast for SLs.

In sum, there seem to be evidence that SLs mark contrast independently from other IS notions. SLs can be argued to provide evidence that we are actually dealing with a different IS notion expressed by specific grammatical means, which overlaps with the topic and the focus of the sentence. The traditional approach adopted until now in most SL research has successfully served the purpose of providing the first descriptions of the expression of IS notions in SLs. However, most of them have consistently assumed traditional definitions for IS notions without questioning more theoretical issues like the ones posed in § 2.1 and § 2.2. This paper analyses in greater detail

semantic-pragmatic interpretations of different types of contrast and their grammatical reflexes in order to contribute to a better understanding of the nature of this notion in both SLs and spoken languages. I adopt a semantic-pragmatic approach, since it allows us to broaden the paradigm of contrast markers in LSC. The definitions of IS notions in this perspective explain better the phenomena found in our data, allowing us to provide a more thorough explanation of the semantic features found in each type expressed through additional markers (head movements).

### 3. Methodology

The data analysed in this paper has been collected through a combination of different methods, taking into account Matthewson's (2004) considerations for conducting semantic fieldwork.

Most of the data have been obtained from two deaf native signers, a woman and a man, raised in Catalonia and educated in special schools for the deaf, where LSC was the main language of communication among deaf students. Different types of elicitation tasks were conducted: i) picture elicitation tasks, ii) storyboard and story-telling tasks (monologues and dialogues), iii) translations, and iv) felicity judgments. Naturalistic data was also obtained from three signers from corpus observation to compare and validate results.

#### 3.1. Picture elicitation task

30 sentences were elicited using visual stimuli from the *Questionnaire for Information Structure (QUIS)* (Skopeteas et al. 2006). 10 sentences for each type of contrast: parallel, selective and corrective. Signers were shown a picture with two referents that were contrasted in some sense (*Figure 2*), and then they were asked a question in LSC related to that picture. Questions were asked by the author, who is a trained sign language interpreter fluent in LSC. To avoid biasing the answers the use of signing space was avoided in the questions.



**Figure 2** Picture from the *Questionnaire for Information Structure*.

Questions were designed to trigger different types of answers: i) some questions were seeking for plain information ('What are the woman and the man doing?'), ii) some questions were forcing the signer to select between two alternatives that were included in the question ('What is the woman riding: a horse or a bike?'), and iii) some questions contained false information that the signer needed to confirm or refute ('The man is riding a bike, right?'). These different types of questions were thought to elicit minimal pairs between parallel, selective, and corrective contrast respectively.<sup>4</sup> Given material in relation to the previous question was considered topic, while new material in relation to the previous question was considered focus. In the case of selective contrast, the answers contained referentially given material that was relationally new; this was considered focused material (based on Gundel & Freitheim 2006). Items were randomly presented, and results were consistent across both informants.

#### 3.2. Storyboard and story-telling tasks

The goal of these tasks was to obtain more naturalistic data in the context of a monologue or a dialogue. Two storyboards from Totemfield Storyboards (Littell 2010), created specifically for the elicitation of CF and other IS notions, were used for the elicitation of this data. Signers had

<sup>4</sup> This elicitation task was based on the methodology and classification used in Kimmelman (2014).



to create a dialogue between them based on the storyboards presented. 16 tokens that involved parallel contrast were analysed.

Moreover, two monologues were recorded in which signers had to retell two mute short films (*Extinguished*<sup>5</sup> and *Alike*<sup>6</sup>). Both films were specifically selected for this research since the stories involved two referents that were consistently contrasted across the narration. Therefore, even though it was a freer discourse, they produced CTs and CFs as expected. 33 examples were obtained from both monologues: 26 instances of parallel focus, and 7 examples that contained some kind of opposition between the alternatives.

### 3.3. Translation task

Signers were asked to translate a sentence that was presented in written Spanish.<sup>7</sup> The procedure was the following: signers were provided with a context in LSC and afterwards they were asked to translate a sentence in relation to that context from Spanish to LSC. 215 tokens were obtained and analysed from this task: 120 involving parallel contrast (18), 34 involving selective (19) and 61 involving corrective contrast (20). The number of parallel contrast tokens is higher, since I also analysed structures involving additive focus particles, in addition to the basic parallel contrast with 'and'.

- (18) Context: Your friend asks you what Mary ate. You tell her:  
'Mary ate a salad and a burger.'
- (19) Context: Your friend is not sure if it was a pizza or a burger what Mary ate. You know it was a pizza, so you tell her:  
'Mary ate a pizza.'
- (20) Context: Your friend says that Mary ate a pizza but you know it is not true, so you tell her:  
'Mary didn't eat a pizza but a burger.'

### 3.4. Felicity judgment task

All data collected was rated by the informants weeks later to ensure consistency in the results. Each piece of data was presented again with a signed context, and participants had to rate the felicity of the sentences in relation to that context in a binary way: felicitous vs. infelicitous. No descriptive statistics were conducted.

### 3.5. Corpus observation

Finally, 20 sentences were collected from the Catalan Sign Language corpus (under development in the *Institut d'Estudis Catalans*, Barberà et al. 2015). Tokens were produced by three deaf native signers who narrated the story *Frog, Where Are You?* Same marking for contrast was observed in this data for parallel contrast across topics and focus that validate the results obtained through elicitation tasks. No selective or corrective focus was found in these narrations.

## 4. Contrast in Catalan Sign Language

As mentioned in § 2, most of the studies on IS notions in SLs have assumed that contrast is not an independent category, but a feature that appears in some types of focus and topic constituents. Following Vallduví & Vilkuna (1998) and Molnár (2009) I take a different approach and analyse contrast as an independent notion that works orthogonally to focus and topic.

### 4.1. The expression of contrast in relation to focus and topic

Focus in LSC can be expressed syntactically, through a change in the basic word order (SOV) as in (21) (Quer et al. 2005) to VO, placing the focused item in final position in the sentence (22),

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5 <https://www.youtube.com/watch?v=H8xRmJUf9q4>.

6 <http://www.alike.es/>.

7 Both participants are proficient in Spanish.

or prosodically through eyebrow raise when the focus remains in situ (Navarrete-González 2016, 2019). If contrastive, focus can also be fronted and marked with eyebrow raise (see § 4.2).<sup>8</sup>

(21) BREAD [EAT]<sub>F</sub>  
 ‘(I) EAT bread.’

(22) EAT [BREAD]<sub>F</sub>  
 ‘(I) eat BREAD.’

(Navarrete-González 2019: 26)

Topic in LSC is typically placed in sentence initial position and marked with eyebrow raise and an intonational break after the topicalized constituent (Quer et al., 2005, Pfau & Quer 2010), as illustrated in (23) below.<sup>9</sup>

(23)       re  
 [ONION]<sub>T</sub> I HATE  
 ‘Onions, I hate.’

(Pfau & Quer 2010: 9)

In line with previous research on contrast in SLs (cf. Crasborn & van der Kooij 2013, Kimmelman 2014), contrast in LSC is mainly expressed through a combination of prosodic and morphophonological markers: left-right body leans (bl) and head tilts (ht), and the use of the opposite sides of signing space (cf. Barberà 2012, Navarrete-González 2016, 2019, Zorzi 2018). These markers may spread over topic and focus constituents, as illustrated in (24), and are not found in IF, or simple aboutness topics, as shown in (21), (22) and (23) above.

(24)                   left sp                      right sp  
                  left bl                      right bl  
      re                          re  
 [GIORGIA]<sub>T</sub> [LINGUIST]<sub>F</sub> [RAQUEL]<sub>T</sub> [INTERPRETER]<sub>F</sub>.  
 ‘Giorgia is a linguist and/but Raquel is an interpreter.’

In the example above, the topic and the focus of the contrasted sentences maintain their own markers, which overlap with the contrast markers described before. The topics GIORGIA and RAQUEL are marked with eyebrow raise, and the foci LINGUIST and INTERPRETER occur in clause-final position. On top of these markers, a leftward body lean spreads over the conjunct GIORGIA LINGUIST, which is articulated on the left side of signing space, and a rightward body lean spreads over the conjunct RAQUEL INTERPRETER, which is articulated on the right side of signing space.

Until now we have seen that contrast in LSC has been claimed to be expressed with this combination of markers, which overlap with other IS notions: topic and focus. However, is it always the case that these markers express a contrastive interpretation? Is there a one-to-one correlation between this combination of markers and the interpretation of contrast?

Mayol & Barberà (2018) analysed contrast in LSC in three different contexts: double contrast, implicit contrast, and weak contrast, based on corpus observation. They found that double contrast is primarily conveyed by bare nouns, implicit contrast is expressed through pointing signs addressed to space, and weak contrast conveys uncertainty through specific NMMs articulated in the lower part of the face. This study does not analyse body leans or head tilts but highlights that the use of signing space evokes a contrastive set of alternatives that are not explicit in the sentence.

In the next subsections I provide a paradigm of different types of contrast identified in LSC, and the different strategies that signers use to express this notion. I compare the markers of each of the types, and analyse the semantic interpretations triggered by each type and their correlation with some markers. Finally, I propose a classification of different types of restrictions that can affect (and change) the realization of these markers, giving rise to other marking strategies for the expression of contrast.

<sup>8</sup> For the scope of this paper I will only be considering narrow focus.

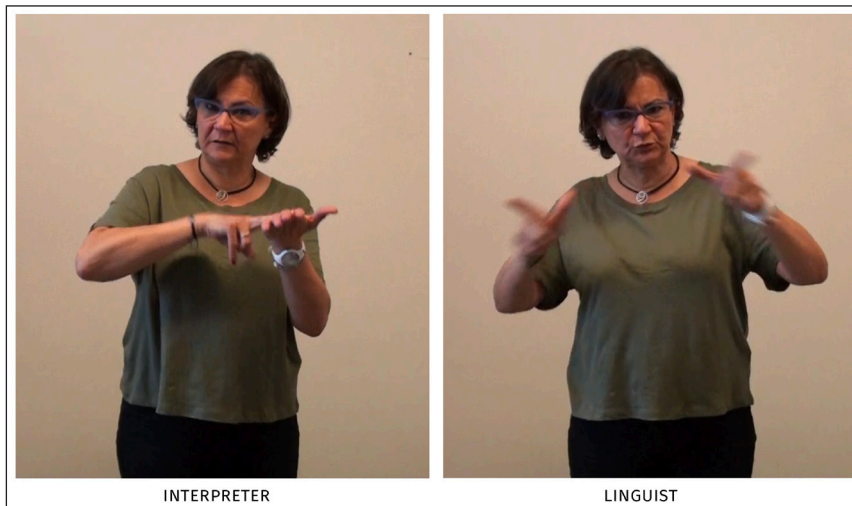
<sup>9</sup> Less frequently, topic can also be found in other positions, but this issue is beyond the scope of this paper.

## 4.2. Contrast types

In LSC at least three different types of contrast can be identified: i) *parallel contrast*, ii) *selective contrast*, and iii) *corrective contrast*, each of which involves a different degree of contrastiveness (cf. Navarrete-González 2019).

### 4.2.1 Parallel contrast

Parallel contrast introduces parallel alternatives that belong to the same set of alternatives, either symmetric or asymmetric. The most common strategy for the expression of parallel contrast is the combination of different prosodic and morphophonological markers: body leans and head tilts from left to right, and the use of the opposite sides of signing space (*Figure 3*) to place the contrasted referents (25, 26).

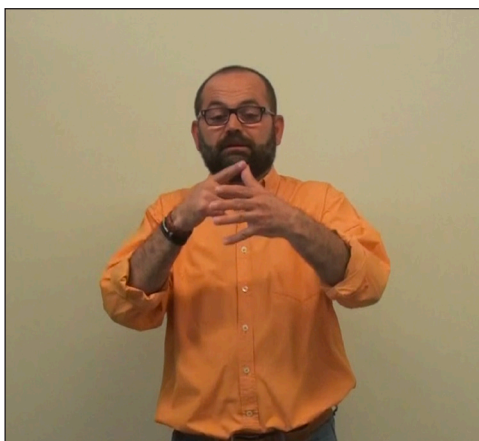


**Figure 3** Parallel contrast markers.

- (25)
- |          |         |          |
|----------|---------|----------|
|          | left sp | right sp |
|          | left bl | right bl |
| _____ re |         |          |
- [RAQUEL PERSON]<sub>T</sub> [INTERPRETER]<sub>F</sub> ALSO [LINGUIST]<sub>F</sub>  
 ‘Raquel is an interpreter and a linguist.’

- (26)
- |          |          |          |
|----------|----------|----------|
|          | left sp  | right sp |
|          | left bl  | right bl |
| _____ re | _____ re |          |
- [GIORGIA]<sub>T</sub> [LINGUIST]<sub>F</sub> [RAQUEL]<sub>T</sub> [INTERPRETER]<sub>F</sub>  
 ‘Giorgia is a linguist and/but Raquel is an interpreter.’

Another strategy commonly used in LSC for the expression of this type of contrast is the lexical marker LIST. This sign is typically used in enumerations, when more than two alternatives are explicitly contrasted (27). It is realized placing the contrasted items in the different fingers of the non-dominant hand of the signer (*Figure 4*).



**Figure 4** Sign LIST.

- (27) ‘What did you buy at the supermarket?’  
 LIST-1 POTATO, LIST-2 EGGPLANT, LIST-3 TOMATO, LIST-4 FISH, LIST-5 MEAT, ETC.  
 ‘Potatoes, eggplants, tomatoes, fish, meat, and other things.’

Even though this marking strategy is preferred in these contexts, this sign is optional. In the absence of this marker the same content is expressed through left-right body leans and the use of the opposite sides of signing space, as shown in (28).

- (28) ‘What did you buy at the supermarket?’  
left sp right sp left sp right sp left sp  
left bl right bl left bl right bl left bl  
 POTATO, EGGPLANT, TOMATO THEN FISH, MEAT, ETC.  
 ‘Potatoes, eggplants, tomatoes, fish, meat, and other things.’

Sometimes parallel contrast may be expressed through a strategy called dominance reversal (cf. Kimmelman 2014): the signer activates his/her non-dominant hand to express simultaneously two referents that are being contrasted. In (29) PUNCH and SLAP are explicit alternatives that belong to the same set, since they share the similarity plus dissimilarity condition. PUNCH is expressed with the dominant hand, and SLAP is expressed with the non-dominant hand.

- (29) Context: The other day I saw a fight in the Street. There were two men arguing and in the end...  
 dh: FIGHT ONE PUNCH  
 ndh: SLAP  
 ‘They fought and one of them punched and slapped the other.’

Unlike what has been claimed for NGT (Kimmelman 2014), the use of this strategy in LSC seems to respond to some morphophonological restrictions in the realization of the combination of markers, which are further explained in § 6.2.

Finally, in this type of contrast the use of additive/scalar focus particles like ‘also’ and ‘even’ is common in LSC. In (30) and (31) below the same combination of NMMs is again displayed over the contrasted focussed items.

- (30) left sp right sp  
left bl right bl  
re  
 [RAQUEL PERSON]<sub>T</sub> [INTERPRETER]<sub>F</sub> **ALSO** [LINGUIST]<sub>F</sub>  
 ‘Raquel is an interpreter and also a linguist.’

- (31) left sp right sp  
left bl right bl  
 LAW IX [ENGLISH]<sub>F</sub> **ALSO** [CATALAN]<sub>F</sub>  
 ‘[You can consult] the law in English and also in Catalan.’

Mayol & Barberà (2018) argue that implicit contrast in LSC may be marked by the focus particle ‘even’, which is primarily marked by the combination of the sign ALSO with specific NMMs: raised eyebrows, eyes wide open and sometimes a head nod (32) (cf. Herrmann 2013).

- (32) BOY ANIMAL DEER CL(8) ‘animal running’/CL(2) ‘two-legged entity on top’ FAST.  
hn, re, we  
 ALSO **DOG** CL(8) ‘animal running’ FAST.  
 ‘The deer was running very fast with the boy lying on his head. Even the dog was running very fast.’

(Mayol & Barberà 2018: 443)

In our data, the meaning of ‘even’ can also be expressed through different lexical signs that are uttered in combination with NMMs similar to the ones described by Mayol & Barberà (2018). Apart from the sign ALSO (32, 33a), the sign UNTIL (33b) is present in many examples, in combination with raised eyebrows, eyes wide open, a head thrust, and the mouthing of the corresponding Spanish word (‘hasta’), expressing the meaning of ‘even’. Moreover, the



In examples (35a-b) no body leans from left to right are displayed since the structures (fronting and clefting) are serving the purpose of contrasting the referents. One possible explanation is that only one of the conjuncts is expressed and therefore there is no need to perform these markers. In (34) the basic word order is preserved so this marking is added to highlight the alternative selected.

#### 4.2.3 Corrective contrast

Corrective contrast substitutes an alternative that is considered false by the interlocutor. Again, the most frequent strategy for expressing this type of contrast in LSC is the combination of body leans and/or head tilts from left to right and the use of the opposite sides of space in combination with a head movement: a strong head thrust that emphasize the correct alternative (36).

- (36)
- |  |              |               |
|--|--------------|---------------|
|  | left sp      | right sp      |
|  | left bl + ht | right bl + ht |
- MARY PIZZA-EAT NOTHING, OTHER BURGER.  
 ‘Mary didn’t eat a pizza, but a burger.’

Interestingly, unlike examples (35a–b) above, and contrary to what Kimmelman (2014) claims for NGT, the combination of markers mentioned before appears also in LSC in some examples of corrective contrast where the signer is uttering a correction with a fragment answer. For instance, in (37) below, signer B corrects signer A with a fragment answer which is expressed with a right body lean towards the right side of space. Since basic word order is preserved some strategy might be needed to highlight the correction. This strategy could be also due to the fact that two signers can make a shared use of signing space (Emmorey 2002, Perniss 2007). In the elicitation of this sentence, signer A uttered the sentence with the false alternative towards her right side of space with a right head tilt, so it is also possible that signer B made use of the opposite side to express the contrast with the previous utterance.

- (37) A: ‘The sea is yellow.’
- |  |               |      |
|--|---------------|------|
|  | hthr          | hthr |
|  | right sp      |      |
|  | right bl + ht |      |
- B: NO, SEA SPECIFIC BLUE  
 ‘No, the sea is BLUE.’

In LSC forward-backward body leans can be found in combination with left-right body leans (cf. Crasborn & van der Kooij 2013 for similar results in NGT). The contrast between the correction and the corrected element is expressed with a forward-backward body lean and, if the correction includes more than one element, a left-right body lean expresses the (parallel) contrast between the elements within that conjunct. In example (38), the backward lean is expressing denial of the false alternative that is being corrected (‘Mary didn’t eat only pizza’), and the forward lean is expressing affirmation of the corrected alternative (‘she ate pizza, ice cream and salad’).

- (38)
- |  |             |            |          |
|--|-------------|------------|----------|
|  | re          |            |          |
|  | backward bl | forward bl |          |
|  | left sp     | central sp | right sp |
|  | left bl     | central bl | right bl |
- MARY PIZZA EAT ONLY NO, PIZZA, ICE CREAM, SALAD  
 ‘Mary didn’t eat only pizza, (she ate) pizza, ice cream and salad.’

In sum, all types of contrast are expressed with the same combination of markers: body leans and/or head tilts from left to right in combination with the use of the opposite sides of signing space. However, in selective contrast and corrective contrast (and also in some examples of parallel contrast with ‘even’), additional head movements are found, which trigger additional interpretations that will be further explained in the next section.



## 5. The interpretation of contrast in LSC

Each of the contrast types described in Section 4 share a basic meaning: they all involve contrast due to similarity plus dissimilarity. However, we can distinguish different types of contrast in which additional pragmatic interpretations are triggered by some NMMs (head nods and head thrusts). Based on Umbach (2004), I explain the interpretation of the different types in the following way:

- i. *Parallel contrast* involves contrast due to similarity plus dissimilarity. This meaning is triggered by the combination of markers: left-right body leans and head tilts and the use of the opposite sides of space to localize the contrasted referents. This type of contrast would be equivalent to the discourse relation SIMILAR in Repp (2016), since the alternatives are making the same contribution to the current QUD. In some instances of parallel contrast with ‘even’ a counterexpectational reading is triggered by an additional head thrust.
- ii. *Selective contrast* involves contrast due to similarity plus dissimilarity, expressed again by the combination of markers: left-right body leans and head tilts and the use of the opposite sides of space, plus contrast due to exclusion, which is triggered by the additional head nod.
- iii. *Corrective contrast* involves contrast due to similarity plus dissimilarity, which again is expressed through left-right body leans and head tilts, and the use of the opposite sides of space; contrast due to exclusion, plus a conflict with the expectations of the interlocutor, which is marked by the additional head thrust.

The additional head nod is triggering an exhaustive reading in selective contrast; and the additional head thrust is triggering an exhaustive and counterexpectational reading in corrective contrast. Mayol & Barberà (2018) argue that the NMMs found for the expression of ‘even’ (eyebrow raise, eyes wide open, and head nod) are marking a counterexpectational meaning. In our data, the counterexpectational meaning is not only found in corrective contrast, but also in some examples of parallel contrast with ‘even’ that involve unexpectedness. Thus, I suggest that it is actually the head thrust the one responsible for the marking of unexpectedness independently of the type of contrast (§§ 4.2.1/4.2.3).

Moreover, repeated head nods have been attested to be co-articulated with signs to express the positive polarity of a clause. Thus, this NMM has also been connected to verum focus in other SLs (cf. Geraci 2005, Pfau & Quer 2010). Affirmation has also been claimed to be expressed through forward leans in ASL and NGT (Wilbur & Patschke 1998, Crasborn & van der Kooij 2013). In our data the repeated head nod seems to have a clear connection to affirmation and exhaustiveness, but it is not always the case that forward leans appear together with head nods to express the same meaning, and more importantly, forward leans are not always marking affirmation in LSC since they can fulfil other functions (§ 6.3). I claim thus that head nods and forward leans in LSC are independent markers that may appear together.

Regarding the perception of the prosody in these constructions, it seems that the additional head markers in both selective and corrective contrast result in a stronger or more intense prosody in more contrastively marked contexts (Figure 5). I argue that the fact that all types of contrast share the same combination of markers in most of the examples provides evidence that we are dealing with a unique notion of contrast with different degrees of contrastiveness. This is in line with Repp (2016), who claims that different types/degrees of contrast should correlate with different markers. In our set of data selective and corrective contrast are clearly marked by different grammatical means.

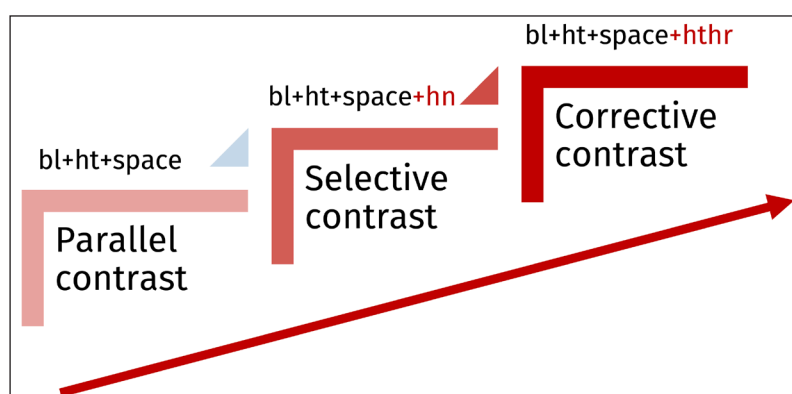


Figure 5 Prosodic marking of the different types of contrast.

Moreover, all contrast types share a common feature: they involve semantic parallelism between the elements being contrasted in the sentence (contrast due to similarity plus dissimilarity in Umbach's terms). I understand by semantic parallelism the fact that the contrasted alternatives belong to the same set and are semantically comparable to each other. It can be the case that two alternatives do not involve syntactic parallelism, but they can be semantically parallel. Semantic parallelism between alternatives in LSC is expressed by the basic combination of markers that is repeated in each of the contrast types presented before (parallel, selective and corrective).

All in all, contrast types seem to be built compositionally, since there are additional meanings that combine to form different discourse relations (selection and correction) expressed through different combinations of markers. However, other prosodic features seem to be perceived as gradient: the movement of a head thrust is articulated with more tension in the neck muscles than the repeated head nod, and this tension seems to be adding intensity to the contrasted alternative.<sup>12</sup> These results are in line with Sandler (2012), who claims that “intonational non-manuals bear regular pragmatic meanings that can be recognized across constructions and, in addition, are componential, because they can be combined to yield a more complex meaning.”

## 6. Restrictions of contrast markers in LSC

In previous sections the paradigm of LSC markers for three different types of contrast was presented. I established that the common marking for any type of contrast in LSC is a combination of left-right body leans and/or head tilts plus the use of the opposite sides of signing space. Even though a high percentage of the data elicited was marked with this combination of markers, some counterexamples were elicited that made me reflect on the possible factors that could override these markers. Quer (2016) claims that there is no one-to-one correlation between NMMs and meaning. Based on spoken language research, Féry (2008) also argues that there is no one-to-one correlation between a prosodic marker and an IS notion/interpretation, and prosody may have a limited amount of strategies.

In this section, I try to elucidate if prosody in LSC has a limited amount of strategies in some contexts, which could trigger the modification of the markers for contrast. I analyse whether in LSC prosodic markers of contrast could be partially or completely modified due to other predominating factors. Moreover, I describe alternative strategies that signers use in order to express contrast when these clashes arise. Restrictions are categorized into three different types: phonological, morphological, and semantic.

### 6.1. Phonological restrictions

#### Body-anchoredness

In LSC some signs are uttered anchored to a location on the body of the signer. In these cases there is a phonological impossibility to use space in front of the signer. Therefore, contrast cannot be expressed through the use of the opposite sides of signing space in the strict sense. The result is that the combination of markers established for contrast is reduced to left-right body leans and/or head tilts, which are directed towards locations in space in an abstract way (39).

(39)

<u>          </u> right sp	<u>          </u> left sp
<u>          </u> right bl + ht	<u>          </u> left bl + ht
GEMMA GO PARIS	RAQUEL IX NEW-YORK

‘Gemma went to Paris and Raquel to New York.’

In example (39) above, GEMMA and RAQUEL are body-anchored, so they are only marked through left and right body leans, and not through the use of space. In contrast, NEW-YORK and PARIS are marked through left-right body leans and head tilts plus articulation on opposite sides of signing space.

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<sup>12</sup> Manual markers, such as duration of the sign, and repetition of the movement, also contribute to this gradient perception adding a more intense stress in more contrastively marked contexts, like correction (cf. Navarrete-González 2016).

## 6.2. Morphological restrictions

NMMs in LSC are not only used for the expression of intonation. They can also have other grammatical functions, such as morphological and syntactic functions (Pfau & Quer 2010). Our hypothesis is that, since the meaning added through a morphological expression cannot be erased, when there is a clash between morphological markers and prosodic markers, the latter ones may get overridden.

### Use of space for other purposes

Space in SLs is used for the expression of many different grammatical functions (Barberà 2007, 2012). When the expression of contrast overlaps with the need of expressing some other function that is typically encoded through the use of different locations in signing space, the use of the opposite sides of space for marking contrast gets overridden. For instance, contrast in LSC is used to locate referents for agreement purposes (Barberà 2007, 2012). If a signer wants to contrast two eventualities that happen to occur with the same referent, who has been previously located in a specific part of signing space (locus), both eventualities will be located in this specific locus, since they are related to the same referent. Due to the impossibility of using the opposite sides of signing space for expressing contrast between the two actions, the signer may employ other strategies that ensure a contrast interpretation. In example (29), repeated as (40) below, the actions ‘to slap’ and ‘to punch’ are directed to the same referent, which is located in a specific locus. In this case, the signer establishes a specific locus for the referent, and then articulates the signs for both actions in this locus. In order to express the contrast between the two actions the signer activates his non-dominant hand for articulating the sign SLAP.<sup>13</sup>

- (40) Context: The other day I saw a fight in the street. There were two men arguing and in the end...  
 dh: FIGHT ONE PUNCH  
 ndh: SLAP  
 ‘They fought and one of them punched and slapped the other.’

Dominance reversal has been already described for other SLs such as RSL and NGT (cf. Kimmelman 2014). I argue that, at least in our set of data, this strategy seems to be used in LSC only if there is any phonological restriction that blocks the appearance of the combination of markers described at the beginning of this chapter.

### Time marking

In LSC time is conceptualized in a timeline that starts behind the shoulder of the signer and spreads over the front part of the signer. The past is conceptualized either behind or at the shoulder (depending on how far in time the action is), and the future is conceptualized in front of the signer (Quer et al. 2005). When two chronological events are contrasted –one happening in the past time, and the other one in the future or the present time– the timeline is used to express the contrast between those events. Therefore, left-right body leans and use of space, which seem to be more commonly used in the expression of contrasted referents, may get overridden by a backward-forward body lean and the use of space, as it appears to happen in (41).

- (41) backward bl \_\_\_\_\_ forward bl  
 BA FINISH NO PAST YEAR IX IN-PARTICULAR MA FINISH.  
 ‘I didn’t finish the BA this year, it was in the past. This year I finished the MA.’

Example (41), however, is misleading, since in some other examples involving contrast and time relations this restriction seems not to be a problem for the expression of left-right body leans. In (42), for instance, left-right body leans express the contrast between the two conjuncts as expected, and a backward body lean spreads over YEAR-PAST expressing the past time.

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<sup>13</sup> Thanks to Fabian Bross for bringing up this example.

- (42) backward bl + ht
- |  |               |         |
|--|---------------|---------|
|  | right sp      | left sp |
|  | bl + ht right | bl left |
- YEAR-PAST IX<sub>1</sub> HOLIDAYS CANARIAS YEAR IX STAY BADALONA.  
 ‘Last year I went on holidays to the Canary Islands. This year I’ll stay in Badalona.’

The difference between examples (41) and (42) is that (41) is a correction, and (42) is an example of parallel contrast. The forward-backward body lean in (41) thus might be expressing denial and affirmation (as predicted by Wilbur & Patschke 1998, and Crasborn & van der Kooij 2013), at the same time that is expressing a contrastive time relation between the events that happened in the past and in the present time. Instead, the backward body lean found in (42) is lexically specified by the compound YEAR-PAST and is not clearly contributing to the expression of contrast between the two alternatives, it is just expressing past time.

### 6.3. Semantic restrictions

Some lexical specifications of the signs of a sign language may be determined by the semantics of a verb or a noun. For instance, lexically specified body movements are attested in signs that involve a semantics of inclusion or exclusion. In different SLs, forward body leans have been associated with inclusion and affirmation, while backward leans have been associated with exclusion and negation (cf. Wilbur & Patschke 1998, van der Kooij et al. 2006, Pfau & Quer 2010). In ASL, for instance, the signs AVOID and REJECT involve a backward body lean while the signs INVOLVE and ENCOURAGE involve a forward body lean (Wilbur & Patschke 1998).

I took these claims as a baseline to test if LSC follows the same patterns, and the lexical level specifications affect or change the markers of contrast that work at a suprasegmental level. In example (43) below, the sign PARTICIPATE involves inclusion and the opposite STOP-PARTICIPATING involves exclusion.

- (43) Context: You had an argument with the president of the Sports Committee of your Deaf association, and you decided that you won’t participate in the organization of the activities anymore. You tell your friend so.
- IX<sub>1</sub> ALWAYS UNTIL-NOW ACTIVITIES DIFFERENT + + + IX<sub>1</sub> PARTICIPATE + + + NOW  
 IX<sub>1</sub> STOP-PARTICIPATION.  
 ‘Until now, I had always participated in the (organization of the) different activities. Now I stopped participating.’

We would expect that these specific lexical semantic features of inclusion and exclusion might influence the realization of the contrasted signs, which we would expect to be uttered with forward and backward body leans instead of left and right body leans (or at least with a combination of both). Surprisingly, the signs PARTICIPATE and STOP-PARTICIPATING are only uttered with left and right body leans, and the inclusive-exclusive meaning that we would find specified as a lexical feature is not found. We could arrive at the conclusion that this premise does not hold for LSC; however, the set of data used in this part is not very extensive, thus a more exhaustive study of verbs involving these features is needed in order to confirm the results and broaden the picture on this issue.

In sum, out of the three different contexts that were tested, only phonological and morphological restrictions seem to affect or modify the combination of markers found for the expression of contrast in LSC.

## 7. Conclusions

In this paper I have described and analysed the notion of contrast in LSC. I have shown through empirical evidence that contrast is most of the times expressed through left and right body leans and/or head tilts and the use of the opposite sides of signing space. Moreover, I have categorized the notion of contrast into three different types: parallel, selective and corrective contrast. All types happen to share the same combination of markers plus some additional head movements in selective and corrective contrast (and in some instances of parallel implicit contrast with ‘even’), which trigger additional pragmatic interpretations: exhaustivity and

counterexpectations. I have also shown some syntactic strategies –fronting and clefting– that are used in some specific contrast types.

Moreover, this research has shown that even though LSC has preferences for expressing contrast in a specific way there are some phonological and morphological factors that can affect this marking, giving rise to alternative strategies.

Finally, contrast seems gradient at the prosodic level, since the additional head movements found in some types of contrast add intensity to the prosody, which is perceived as stronger by the interlocutor. On the other side, contrast discourse relations are built compositionally, since different interpretations such as exclusion, exhaustivity and counterexpectations are combined on top of a basic condition (similarity plus dissimilarity) to form more complex pragmatic discourse relations.

The results of this research contribute to a better understanding of IS notions in LSC, and also crosslinguistically in both spoken and sign languages. The fact that in LSC the marking of contrast is the same for topics and foci provides empirical support for theories that consider contrast as an independent category orthogonal to topic and focus.

## Abbreviations

ASL = American Sign Language, CF = contrastive focus, CT = contrastive topic, DGS = German Sign Language, IF = information focus, IS = information structure, LSC = Catalan Sign Language, LSF = French Sign Language, NGT = Sign Language of the Netherlands, NMM = non-manual marker, NP = noun phrase, QUD = question under discussion, RSL = Russian Sign Language, SL = sign language

## Glossing conventions

The usual glossing conventions in the sign language literature are followed, according to which manual signs are represented by the capitalized word corresponding to the gloss of the sign (the most general translation into a spoken language word). The scope of nonmanual markings is represented with a line that spreads over the manual material with which it is co-articulated. The relevant abbreviations for the purposes of this paper are the following ones: dh (dominant hand); ndh (non-dominant hand); ix (pointing sign); ix# (pronominal index; the number corresponds to 1st, 2nd or 3rd person); rhq (rhetorical question); re (raised eyebrows); bl (body lean); hs (head shake); ht (head tilt); hn (head nod); hthr (head thrust); mth (mouthing); we (wide eyes); sp (space).

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## Competing interests

The author has no competing interests to declare.

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